INDEX TO VOLUME XX.

OCTOBER, 1900, TO MARCH, 1901.

The titles first appearing under each classification-head are those of leading articles in the Magazine. The titles in smaller type, which follow, indicate articles from other journals which have been editorially noticed in the "Review of the Engineering Press."

CIVIL ENGINEERING.

		PAGE.
THE REGULATION OF THE YELLOW RIVER IN CHINA . . . . . With 18 Illustrations.	*William Starling*	373
RUSSIA'S SYSTEMS OF INTERNAL WATERWAYS With 18 Illustrations.	*Alexander Hume Ford*	829
ENGINEERING OPPORTUNITIES IN CENTRAL AND SOUTHWESTERN ASIA . . With 14 Illustrations.	*H. H. Ford*	1068

REVIEWS.

American Society of Municipal Improvements..... 119
Alps as a Source of Power..... 275
Baltic-Caspian Canal..... 112
Bilbao, Port of..... 111
Breakwater, The Reaction..... 454
Buildings, Height of..... 117
Caspian-Baltic Canal..... 112
Coaling of Warships at Sea..... 792
Coast Communication with the Great Lakes 455
Drinking Water, Pure..... 781
Elastic Limit and Ultimate Strength... 786
Engineering and Architecture.....1111
Filtration at Pittsburg, Water..... 953
Gas Lighting, Intensified 783
Great Lakes, Coast Communication with 455
Height of Buildings..... 117
Hydraulic Power of the Rhone..... 272
Ice-Making, Distillation of Water for.. 937
Kinzua Viaduct, Rebuilding the..... 794
London Sewage, Treatment of..... 931
Mathematics for Engineers..... 457
Municipal Improvements, American-Society of..... 119
Mississippi River, The Mouth of..... 286
New York, Waste Water in..... 122
Pittsburg, Water Filtration at..... 953
Port of Bilbao..... 111
Pumping Engine Economy..... 281
Railway Development, The Influence of. 275
Reaction Breakwater, The..... 454
Rebuilding the Kinzua Viaduct..... 794
Rhone, Hydraulic Power of..... 272
River Regulation 114
Sewage, Treatment of London..... 931
Siberian Railway, Progress of..... 944
Simplon Tunnel, Progress of..... 273
Simplon Tunnel, Work on the..... 788
Strength, Elastic Limit and Ultimate.. 786
Testing Materials, Improvements..... 789
Triangulation, Transcontinental..... 947
Ultimate Strength, Elastic Limit and... 786
Viaduct, Rebuilding the Kinzua..... 794
Waste Water in New York..... 122
Water Filtration at Pittsburg..... 953
Water for Ice-Making, Distillation of.. 937
Water-Jet in Engineering Construction. 796
Water, Pure Drinking..... 781
Wind Pressure 113

INDEX to leading articles on Civil Engineering in the Engineering Press, including Bridges, Canals, Rivers and Harbours, Hydraulics, Irrigation, Sewerage, Streets and Pavements, Water Supply and Miscellany .....128, 289, 462, 802, 958, 1118.

See also Index to Architectural Engineering in the Engineering Press, including Construction and Design, Heating and Ventilation, Plumbing and Gasfitting and Miscellany...127, 289, 461, 801, 957, 1117.

ECONOMICS AND INDUSTRY.

		PAGE.
THE WORLD'S NEED OF COAL AND THE UNITED STATES' SUPPLIES	*F. E. Saward*	1
NATIONAL IDEALS THE PRIME INFLUENCE IN IRON-TRADE DEVELOPMENT . .	*H. J. Skelton*	9

ELECTRIC-POWER DISTRIBUTION IN GREAT BRITAIN	*W. H. Booth*	41
THE COMMERCIAL ORGANISATION OF THE MACHINE-SHOP	*Hugo Diemer*	73
V. Practical and Accurate Time-Keeping		
With 5 Forms.		
VI. The Figuring of Total Costs		229
THE LOADING AND TRANSPORT OF SEA-BORNE COAL	*F. Seaton Snowdon*	157
With 24 Illustrations.		
THE DEVELOPMENT OF ELECTRIC RAILWAYS IN ITALY	*Enrico Bignami*	173
With 17 Illustrations.		
PIECE-WORK AS AN AGENCY IN MACHINE-SHOP COST REDUCTION	*M. Cokely*	192
THE GENERAL PRINCIPLES OF SUCCESSFUL MINE MANAGEMENT	*A. G. Charleton*	235
THE LOCOMOTIVE EXHIBIT AT THE PARIS EXPOSITION	*Charles Rous-Marten*	247
With 9 Illustrations.		
THE INDUSTRIAL SIGNIFICANCE OF THE ANGLO-GERMAN ALLIANCE	*Editorial*	325
THE EXPENSE ACCOUNT OF THE MACHINE SHOP	*H. L. Arnold*	365
THE REGULATION OF THE YELLOW RIVER IN CHINA	*William Starling*	373
With 18 Illustrations.		
THE MEANING OF COMMERCIAL ORGANISATION	*A. Hamilton Church*	391
THE IRON ORES OF BRITISH COLUMBIA	*H. Mortimer Lamb*	399
With 4 Illustrations.		
CENTRAL STATION PRACTICE IN ENGLAND	*Frank C. Perkins*	408
With 14 Illustrations.		
LORD ARMSTRONG AND THE ELSWICK WORKS	*Benjamin Taylor*	491
With 9 Illustrations.		
THE HUGE ENTERPRISES BUILT UP BY ANDREW CARNEGIE	*Charles M. Schwab*	505
With 12 Illustrations.		
THE FOUNDERS OF THE KRUPP ESTABLISHMENTS	*E. Schrödter*	519
With 8 Illustrations.		
GEORGE WESTINGHOUSE—INVENTOR, ORGANISER AND DIRECTOR	*Walter M. McFarland*	531
With 15 Illustrations.		
USES AND ABUSES OF ORGANISATION AMONG EMPLOYERS AND EMPLOYEES	*Sir Benjamin C. Browne*	553
I. What Employers May Prevent and Effect by United Action		
II. The Old Trade-Unionism *vs.* Wisely-Organised Labour	*G. N. Barnes*	560

INTENSIFIED PRODUCTION AND ITS INFLUENCE UPON THE WORKER	*Milton P. Higgins*	568
ALTRUISM AND SYMPATHY AS FACTORS IN WORKS ADMINISTRATION. With 65 Illustrations.	*John H. Patterson*	577
THE RELATION OF THE STEAM ENGINE TO MODERN ECONOMIC PRODUCTION	*F. R. Hutton*	609
THE TAYLOR DIFFERENTIAL PIECE-RATE SYSTEM	*Sanford E. Thompson*	617
THE PREMIUM PLAN OF LABOUR REMUNERATION	*H. M. Norris*	631
A SURVEY OF MODERN FOUNDRY PRACTICE. With 19 Illustrations.	*Percy Longmuir*	641
THE PRINCIPLES AND METHODS OF PRACTICALLY OPERATING THE MINE		
I. The Practical Management of Mining Operations. With 10 Illustrations.	*John E. Hardman*	665
II. Office Organisation, Cost-Keeping, and Records of Work Done. With 7 Tables.	*A. G. Charleton*	685
COST-KEEPING: A SUBJECT OF FUNDAMENTAL IMPORTANCE	*James Newton Gunn*	703
THE MECHANICAL AND COMMERCIAL LIMITS OF SPECIALISATION	*J. Slater Lewis*	709
SHOP ARRANGEMENT AS A FACTOR IN EFFICIENCY	*H. F. L. Orcutt*	717
THE RADICAL POLICY OF SCRAPPING COSTLY MACHINERY. With 3 Illustrations.	*H. F. J. Porter*	741
THE DISCIPLINE AND CONTROL OF RAILWAY EMPLOYEES	*W. H. Canniff*	753
STRENGTH AND WEAKNESS OF THE COMBINATION OR TRUST IDEA		761
I. The Policy, Methods, and Aims of the Standard Oil Company	*John D. Rockefeller*	
II. Some Popular Delusions Concerning Trusts	*Andrew Carnegie*	
III. The Demoralising Influence of Speculative Promoters	*James G. Dill*	
IV. Imperative Need of Greater Publicity in Company Management	*The Late Lord Chief Justice Russell*	
RUSSIA'S SYSTEM OF INTERNAL WATERWAYS. With 18 Illustrations.	*Alexander Hume Ford*	829
INDUSTRIAL ASCENDENCY OF THE ANGLO-AMERICAN PEOPLES	*Caspar L. Redfield*	847
ORGANISATION OF THE FACTORY SALES DEPARTMENT	*O. D. Hogue*	853
THE QUESTION OF COST OF HIGH-SPEED TRAINS. With 3 Illustrations.	*Charles Rous-Marten*	885

GOLD MINING AND MILLING IN WESTERN AUSTRALIA . . . . . *A. G. Charleton*
I. History, Position, and General Features of the Gold-Fields . . 897
With 7 Illustrations.

THE APPLICATION OF PIECE WORK AND THE PREMIUM PLAN . . . . . *Sir Benj. C. Browne* 913

ARBITRATION OF LABOUR QUESTIONS NECESSARY TO INDUSTRIAL ASCENDENCY . *C. B. Going* 920

THE COMING INDUSTRIAL EMPIRE OF PUGET SOUND . . . . . *D. B. Bogle* 989

INFLUENCE OF THE EXPOSITION ON THE FRENCH IRON AND STEEL INDUSTRY *Henri Guerin* 1043
With 1 Illustration.

ENGINEERING OPPORTUNITIES IN CENTRAL AND SOUTHWESTERN ASIA . . *H. H. Ford* 1068
With 14 Illustrations.

THE RECKONING OF COSTS FOR ISOLATED ELECTRIC PLANTS . . . . *P. R. Moses* 1083

REVIEWS.

Alps as a Source of Power..... 275
Aluminum, The Progress of.....1111
American Coal in England..... 104
American Engines in England..... 120
American Railway Statistics..... 458
American Society of Municipal Improvements..... 119
Association Screw Gauge..... 266
Baltic-Caspian Canal..... 112
Barmen-Elberfeld Railway..... 448
Bilbao, Port of..... 111
Blast-Furnace Practice, American and British 268
British Navy, Engineering in..... 782
Caspian-Baltic Canal..... 112
Coal in England, American..... 104
Coal, The Burden of..... 263
Coal to Europe, Transport of American..... 270
Coast Communication with the Great Lakes..... 455
Corliss Engines at the Exposition..... 116
Cost of Power Generation..... 264
Drinking Water, Pure..... 781
Education and Trade..... 938
Education of Railroad Men..... 279
Education, Technical.....1093
Elberfeld-Barmen Railway..... 448
Electrical Engineering, The Profession of 776
Enginering in the British Navy..... 782
Engineering in the Nineteenth Century.1095
Engineering Work, Insularity in..... 440
Engineer, The Training of..... 435
England, American Engines in..... 120
Evolution of Science.....1105
Exhaustion of Nature's Stores.....1109
Exposition, Corliss Engines at..... 116
Filtration at Pittsburg, Water..... 953
Gas Lighting, Intensified..... 783
Great Lakes, Coast Communication with 455
Hydraulic Power of the Rhone..... 272
Iron and Steel Question..... 267
Iron Industry in the Urals..... 271
Iron, Manufacture of..... 936
Judgment in Technical Matters.....1108
London Sewage, Treatment of..... 931
Machine Works, Reorganisation of.... 105
Massena Power Plant..... 457
Mathematics for Engineers..... 457
Municipal Improvements, American Society of..... 119
Navy, Engineering in the British..... 782
Nineteenth Century, Engineering in....1095
New York, Waste Water in..... 122
Pig-Iron Production, American..... 283
Pittsburg, Water Filtration at..... 953
Port of Bilbao..... 111
Power Generation, Cost of..... 264
Priggishness in Science..... 438
Profession of Electrical Engineering.. 776
Progress of Aluminum.....1111
Railroad Men, The Education of..... 279
Railway Development, The Influence of. 275
Railway Statistics, American..... 458
Reorganisation of Machine Works..... 105
Rhone, Hydraulic Power of the..... 272
Science, Evolution of.....1105
Science, Priggishness in..... 438
Screw Gauge, Association..... 266
Sewage, Treatment of London 931
Siberian Railway, Commerical Influence of.....1103
Siberian Railway, Progress of the..... 944
Standardisation in Manufactures..... 441
Steel Question, Iron and..... 267
Trade, Education and..... 938
Technical Education.....1093
Training of Engineers..... 435
Transport of American Coal to Europe. 270

Triangulation, Transcontinental..... 947
Urals, Iron Industry in..... 271
Waste Water in New York..... 122
Water Filtration at Pittsburg..... 953
Water, Pure Drinking..... 781

INDEX to leading articles on Economics and Industry and Industrial Sociology in the Engineering Press, and Current Reviews, including Commerce and Trade, Currency and Finance, Government Control, Labour, etc., will be found under Miscellany in the various departments.

ELECTRICAL ENGINEERING.

		PAGE
ELECTRIC-POWER DISTRIBUTION IN GREAT BRITAIN	*W. H. Booth*	41
THE DEVELOPMENT OF ELECTRIC RAILWAYS IN ITALY. With 17 Illustrations.	*Enrico Bignami*	173
CENTRAL STATION PRACTICE IN ENGLAND. With 14 Illustrations.	*Frank C. Perkins*	408
GEORGE WESTINGHOUSE—INVENTOR, ORGANISER AND DIRECTOR. With 15 Illustrations.	*Walter M. McFarland*	531
APPLICATIONS OF ELECTRICITY IN ENGINEERING WORKS. With 22 Illustrations.	*Louis Bell*	723
ELECTRIC POWER MACHINERY IN IRON AND STEEL WORKS. With 17 Illustrations.	*Sidney F. Walker*	858
THE RECKONING OF COSTS FOR ISOLATED ELECTRIC PLANTS	*P. R. Moses*	1083

REVIEWS.

Alps as a Source of Power..... 275
Central Stations, Large Gas Engines for 934
Cost of Power Generation..... 264
Distribution, Electrical Power..... 101
Electrical Equipment of Modern Warships..... 939
Electrical Measurement of Power..... 797
Electric Locomotives and Multiple Driving..... 932
Electric Oscillations and Waves.....1091
Electric Power Distribution.....1098
Electric Power in Workshops..... 951
Electric Traction for Heavy Railway Service.....1107
Electric Stimulus..... 264
Electricity in Warfare.....1094
Engine and Generator Builders, Relations Between..... 798
Engineering, The Profession of Electrical..... 776
Gas as a Source of Motive Power, Lean..... 447
Gas Engines for Central Stations, Large..... 934
Generator Builders, Relations Between Engines and..... 798
Hydraulic Power of the Rhone..... 272
Hydraulic Power Plant, St. Croix..... 954
Incandescent Lamps, The Rating of... 280
Locomotives and Multiple Driving, Electric..... 932
Locomotives, Steam and Electric..... 778
Massena Power Plant..... 457
Measurement of Power, Electrical.... 797
Multiplex Space Telegraphy.....1099
Multiple Driving, Electric Locomotives and..... 932
Oscillations and Waves, Electric.....1091
Power Distribution, Electric.....1098
Power, Electrical Measurement of..... 797
Power Generation, Cost of..... 264
Power in Workshops, Electric..... 951
Power Plant, St. Croix Hydraulic.... 954
Power Plants, The Regulation of..... 121
Profession of Electrical Engineering.. 776
Railway Service, Electric Traction for Heavy.....1107
Rapid Telegraphy, Progress in..... 436
Regulation of Electric-Power Plants... 121
Rhone, Hydraulic Power of..... 272
Space Telegraphy, Multiplex.....1099
St. Croix Hydraulic Power Plant..... 954
Stimulus, Electric..... 264
Warfare, Electricity in.....1094
Warships, Electrical Equipment of Modern..... 939
Waves, Electric Oscillations and.....1091
Workshops, Electric Power in..... 951

INDEX to leading articles on Electrical Engineering in the Engineering Press, including Electro-Chemistry and Metallurgy, Lighting, Power, Telegraphy and Telephony, and Miscellany.....
.....134, 204, 467, 806, 963, 1123.

MARINE AND NAVAL ENGINEERING.

		PAGE.
THE LOADING AND CARRIAGE OF SEA-BORNE COAL . . . . . With 24 Illustrations.	*F. Seaton Snowdon*	157
THE APPLICATION OF WATER-TUBE STEAM GENERATORS FOR NAVAL SERVICE . With 4 Illustrations.	*B. H. Thwaite*	
I. Their Comparative Suitability, Efficiency, and Convenience in War-Ships		199
II. Principal Classes and Representative Types of Water-Tube Boilers . . . . . With 36 Illustrations.		331
LORD ARMSTRONG AND THE ELSWICK WORKS With 9 Illustrations.	*Benjamin Taylor*	491
EQUIPMENT AND METHODS OF THE INDIAN DOCKYARDS . . . . . With 16 Illustrations.	*A. C. Bowden*	1001

REVIEWS.

American Navy, Steam Engineering in. 451
Boilers in the British Navy..... 103
Boiler Tubes, Corrosion of..... 118
British Navy, Boilers in..... 103
British Navy, Engineering in..... 782
Coaling of Warships at Sea..... 792
Coal to Europe, Transport of American 270
Corrosion of Boiler Tubes..... 118
Electrical Equipment of Modern Warships 939
Electricity in Warfare..... 1094
Engineering in British Navy..... 782
Experimental Basin at Washington .. 795
Fighting Ships, Machinery of..... 107
Fouling of Ships..... 102
Machinery of Fighting Ships..... 107
Navy, Engineering in British..... 782
Ships, Fouling of..... 102
Steam Engineering in the American Navy 451
Submarine Boats..... 1098
Torpedoes, Automobile..... 274
Transport of American Coal to Europe. 270
Warfare, Electricity in..... 1094
Warships, Electrical Equipment of.... 939

INDEX to leading articles on Marine and Naval Engineering in the Engineering Press and Current Reviews, including Boilers and Engines, Naval Affairs, and Miscellany.....140, 303, 474, 812, 970, 1130.

MECHANICAL ENGINEERING.

		PAGE.
NATIONAL IDEALS THE PRIME INFLUENCE IN IRON-TRADE DEVELOPMENT . .	*H. J. Skelton*	9
THE USE OF WATER POWER BY DIRECT AIR COMPRESSION . . . . . With 6 Illustrations.	*Wm. O. Webber*	50
THE CENTRALISATION OF THE STEAM CONDENSING PLANT	*Harry G. V. Oldham*	
I. Important Recent Progress in Increasing Power-House Economy With 15 Illustrations.		56
II. Types of Cooling Towers, Evaporating Condensers, and Auxiliaries . . . . . With 10 Illustrations.		
THE COMMERCIAL ORGANISATION OF THE MACHINE-SHOP	*Hugo Diemer*	73
V. Practical and Accurate Time-Keeping . . . . . With 5 Forms.		

VI. The Figuring of Total Costs . 229
THOUSAND-MILE AUTOMOBILE TRIALS . *W. Worby Beaumont* 81
With 14 Illustrations.
PIECE-WORK AS AN AGENCY IN MACHINE-SHOP COST REDUCTION . . . *M. Cokely* 192
THE APPLICATION OF WATER-TUBE STEAM GENERATORS FOR NAVAL SERVICE . *B. H. Thwaite*
I. Their Comparative Suitability, Efficiency, and Convenience in War-Ships 199
With 4 Illustrations.
II. Principal Classes and Representative Types of Water-Tube Boilers 331
With 36 Illustrations.
THE EXPENSE ACCOUNT OF THE MACHINE SHOP . . . . . *H. L. Arnold* 365
THE MEANING OF COMMERCIAL ORGANISATION . . . . . *A. Hamilton Church* 391
CENTRAL STATION PRACTICE IN ENGLAND . *Frank C. Perkins* 408
With 14 Illustrations.
MOTIVE-POWER FROM HIGH-FURNACE GASES *Bryan Donkin* 422
With 6 Illustrations.
LORD ARMSTRONG AND THE ELSWICK WORKS *Benjamin Taylor* 491
With 9 Illustrations.
THE HUGE ENTERPRISES BUILT UP BY ANDREW CARNEGIE . . . . *Charles M. Schwab* 505
With 12 Illustrations.
THE FOUNDERS OF THE KRUPP ESTABLISHMENTS . . . . . *E. Schrödter* 519
With 8 Illustrations.
GEORGE WESTINGHOUSE—INVENTOR, ORGANISER AND DIRECTOR . . . *Walter M. McFarland* 531
With 15 Illustrations.
GREAT WORKSHOPS OF THE WORLD . .
A Series of Photographic Reproductions 547, 603, 736
With 38 Illustrations.
USES AND ABUSES OF ORGANISATION AMONG EMPLOYERS AND EMPLOYEES . . *Sir Benjamin C. Browne* 553
I. What Employers May Prevent and Effect by United Action .
II. The Old Trade-Unionism *vs.* Wisely-Organised Labour . *G. N. Barnes* 560
INTENSIFIED PRODUCTION AND ITS INFLUENCE UPON THE WORKER . . *Milton P. Higgins* 568
ALTRUISM AND SYMPATHY AS FACTORS IN WORKS ADMINISTRATION . . *John H. Patterson* 577
With 65 Illustrations.
THE RELATION OF THE STEAM ENGINE TO MODERN ECONOMIC PRODUCTION . *F. R. Hutton* 609

THE TAYLOR DIFFERENTIAL PIECE-RATE SYSTEM	*Sanford E. Thompson*	617
THE PREMIUM PLAN OF LABOUR REMUNERATION	*H. M. Norris*	631
A SURVEY OF MODERN FOUNDRY PRACTICE With 19 Illustrations.	*Percy Longmuir*	641
COST-KEEPING: A SUBJECT OF FUNDAMENTAL IMPORTANCE	*James Newton Gunn*	703
THE MECHANICAL AND COMMERCIAL LIMITS OF SPECIALISATION	*J. Slater Lewis*	709
SHOP ARRANGEMENT AS A FACTOR IN EFFICIENCY	*H. F. L. Orcutt*	717
APPLICATIONS OF ELECTRICITY IN ENGINEERING WORKS With 22 Illustrations.	*Louis Bell*	723
THE RADICAL POLICY OF SCRAPPING COSTLY MACHINERY With 3 Illustrations.	*H. F. J. Porter*	741
STRENGTH AND WEAKNESS OF THE COMBINATION OR TRUST IDEA		761
I. The Policy, Methods and Aims of the Standard Oil Company	*John D. Rockefeller*	
II. Some Popular Delusions Concerning Trusts	*Andrew Carnegie*	
III. The Demoralising Influence of Speculative Promoting	*James B. Dill*	
IV. Imperative Need of Greater Publicity in Company Management	*The Late Lord Chief Justice Russell*	
ORGANISATION OF THE FACTORY SALES DEPARTMENT	*O. D. Hogue*	853
ELECTRIC-POWER MACHINERY IN IRON AND STEEL WORKS With 17 Illustrations.	*Sydney F. Walker*	858
AUXILIARY STEAM AND WATER APPLIANCES FOR WATER-TUBE BOILERS With 16 Illustrations.	*B. H. Thwaite*	877
THE APPLICATION OF PIECE WORK AND THE PREMIUM PLAN	*Sir Benj. C. Browne*	913
ARBITRATION OF LABOUR QUESTIONS NECESSARY TO INDUSTRIAL ASCENDANCY	*C. B. Going*	920
INFLUENCE OF THE EXPOSITION ON THE FRENCH IRON AND STEEL INDUSTRY With 1 Illustration.	*Henri Guerin*	1043

REVIEWS.

Alps as a Source of Power..... 275
American Engines in England..... 120
American Navy, Steam Engineering in. 451
Association Screw-Gauge..... 266
Banki Motor..... 115
Balloons, Dirigible..... 278

Boiler Tubes, Corrosion of..... 118
Boiler Shells, Strength of..... 784
Blast-Furnace Practice, American and British 268
Boilers in British Navy..... 103
British Navy, Engineering in..... 782
Bronze, Influence of Heat on.....1106
Central Stations, Large Gas Engines for 934
Coaling of Warships at Sea..... 792
Coke-Oven Systems, Modern..... 445
Compound Locomotive, Distribution of Steam in..... 785
Compressed Air Traction in New York. 949
Corliss Engines at the Exposition.... 116
Corrosion of Boiler Tubes..... 118
Cost of Power Generation..... 264
Cranes, Foundry Traveling..... 452
Education, Technical.....1093
Elastic Limit and Ultimate Strength.. 786
Electric Power in Workshops..... 951
Electrical Measurement of Power.... 797
Engine and Generator Builders, Relations Between..... 798
Engineering in British Navy..... 782
Engineering Work, Insularity in..... 440
Engineers, The Training of..... 435
Engines in England, American..... 120
Exposition, Corliss Engines at..... 116
Fighting Ships, Machinery of..... 107
Foundry, Pneumatic Appliances in the. 948
Friction of Lubricants, Internal..... 941
Fuel, Gaseous..... 106
Fuel, Liquid..... 779
Furnace Gases, Heat and Power from. 453
Gas as a Source of Motive Power, Lean 447
Gas Development, Power..... 787
Gas Engines for Central Stations, Large 934
Gaseous Fuel..... 106
Generator Builders, Relations Between Engine and 798
Heat, Influence of, on Bronze.....1106
Heat, Transmission of, Through Metals 1101
High Temperature..... 437
Hydraulic Power of the Rhone..... 272
Hydraulic Power Plant, St. Croix..... 954
Ice-Making, Distillation of Water for. 937
Induction Jets, A Study of..... 444
Iron and Steel, Phase Theory of..... 943
Iron and Steel Question..... 267
Iron, Manufacture of..... 936
Liquid Fuel..... 779
Locomotives, Distribution of Steam in Compound 785
Locomotives, Steam and Electric..... 778
Lubricants, Internal Friction of..... 941
Machine Works, Reorganisation of.. 105
Machinery of Fighting Ships..... 107
Massena Power Plant..... 457
Mathematics for Engineers..... 457
Measurement of Power, Electrical.... 797
Measurement of Steam..... 940
Motor, Banki..... 115
Moulding by Machinery.....282, 1113
Navy, Engineering in British..... 782
Phase Theory of Iron and Steel..... 943
Pneumatic Appliances in the Foundry.. 948
Power, Electrical Measurement of.... 797
Power Gas Development..... 787
Power Gas Generation..... 443
Power Generation, Cost of..... 264
Power in Workshops, Electric..... 951
Power Plant, St. Croix Hydraulic.... 954
Pumping Engine Economy..... 281
Reorganisation of Machine Works.... 105
Rhone, Hydraulic Power of..... 272
Rolling Mills, Modern..... 442
St. Croix Hydraulic Power Plant..... 954
Screw Gauge, Association..... 266
Standardisation in Manufactures..... 441
Steam Engines, Regulation of.....1102
Steam Engineering in the American Navy 451
Steam Indicators, Reliability of..... 277
Steam, Measurement of..... 940
Steam Turbine..... 942
Steam Turbine, Development of the.. 791
Steam Turbine in America, The Parsons 950
Steel, Phase Theory of Iron and..... 943
Steel Question, Iron and..... 267
Strength, Elastic Limit and Ultimate.. 786
Strength of Boiler Shells..... 784
Technical Education.....1093
Testing Materials, Improvements in.. 789
Torpedoes, Automobile..... 274
Traction in New York, Compressed Air 949
Training of Engineers..... 435
Traveling Cranes, Foundry..... 452
Ultimate Strength, Elastic Limit and. 786
Water for Ice-Making, Distillation of. 937
Wind Pressure..... 113
Workshops, Electric Power in..... 951

INDEX to leading articles on Mechanical Engineering in the Engineering Press, including Boilers, Furnaces and Firing, Compressed Air, Engines and Motors, Gas Engineering, Power and Transmission, Shop and Foundry, and Miscellany.....138, 141, 302, 305, 472, 476, 810, 814, 969, 971, 1129, 1132.

MINING AND METALLURGY.

PAGE.

THE WORLD'S NEED OF COAL AND THE UNITED STATES' SUPPLIES . . . . . *F. E. Saward* 1

THE CONNELLSVILLE COKE REGION . . . *F. C. Keighley* 17

With 29 Illustrations.

THE GENERAL PRINCIPLES OF SUCCESSFUL MINE MANAGEMENT . . . *A. G. Charleton* 235

THE IRON ORES OF BRITISH COLUMBIA . *H. Mortimer Lamb* 399
With 4 Illustrations.

THE PRINCIPLES AND METHODS OF PRACTICALLY OPERATING THE MINE . .

I. The Practical Management of Mining Operations . . . *John E. Hardman* 655
With 10 Illustrations.

II. Office Organisation, Cost-Keeping, and Records of Work Done . *A. G. Charleton* 685
With 7 Tables.

GOLD MINING AND MILLING IN WESTERN AUSTRALIA . . . . . *A. G. Charleton*

I. History, Position, and General Features of the Gold-Fields . . 897
With 7 Illustrations.

II. General Geology of the Field, and the Dry-Blowing Process . 1023
With 15 Illustrations.

REVIEWS.

Aluminum, The Progress of.....1097
American Coal in England..... 104
Blast-Furnace Practice, American and British 268
Coal Cutting by Machinery.....1097
Coal in England, American..... 104
Coal, The Burden of..... 263
Coal to Europe, Transport of American 270
Coke-Oven Systems, Modern..... 445
Fuel in Metallurgy, Petroleum..... 110
Iron and Steel, Phase Theory of..... 943
Iron and Steel Question..... 267
Iron Industry in the Urals..... 271
Iron, Manufacture of..... 936
Machinery, Coal Cutting by.....1097
Petroleum Fuel in Metallurgy..... 110
Phase Theory of Iron and Steel..... 943
Pig-Iron Production, American..... 283
Progress of Aluminum.....1111
Pumping Engine Economy..... 281
Rescue Apparatus in Mining..... 450
Steel, Phase Theory of Iron and..... 943
Steel Question, Iron and..... 267
Transport of American Coal to Europe. 270
Urals, Iron Industry in..... 271

INDEX to leading articles on Mining and Metallurgy in the Engineering Press, including Coal and Coke, Copper, Gold and Silver, Iron and Steel, Mining, and Miscellany...146, 311, 480, 820, 977, 1138.

RAILWAY AFFAIRS.

PAGE.

THE LOCOMOTIVE EXHIBIT AT THE PARIS EXPOSITION . . . . . *Charles Rous-Marten* 247
With 9 Illustrations.

THE DISCIPLINE AND CONTROL OF RAILWAY EMPLOYEES . . . . . *W. H. Canniff* 753

THE QUESTION OF COST OF HIGH-SPEED TRAINS . . . . . *Charles Rous-Marten* 885
With 3 Illustrations.

ACTUAL WORKING OF AMERICAN LOCOMOTIVES ON BRITISH RAILWAYS . . *Charles Rous-Marten* 1055
With 10 Illustrations.

REVIEWS.

American Railway Statistics..... 458
Barmen-Elberfeld Railway..... 448
Capacity of Railway Waggons..... 775
Compound Locomotives, Distribution of Steam in..... 785
Construction, American Permanent Way 123
Education of Railroad Men..... 279
Elberfeld-Barmen Railway..... 448
Electric Locomotives and Multiple Driving 932
Express Locomotives, Efficiency of.... 446
Kinzua Viaduct, Rebuilding the..... 794
Locomotives and Multiple Driving, Electric 932
Locomotives, Distribution of Steam in. 785
Locomotives, Efficiency of Express.... 446
Multiple Driving, Electric Locomotives and 932
Permanent Way Construction..... 123
Railroad Men, The Education of..... 279
Railway Development, The Influence of 275
Rebuilding the Kinzua Viaduct..... 794
Siberian Railway, Commercial Influence of.....1103
Siberian Railway, Progress of..... 944
Simplon Tunnel, Progress of..... 273
Simplon Tunnel, Work on the..... 788
Speeds, Railway..... 439
Statistics, American Railway..... 458
Viaduct, Rebuilding the Kinzua..... 794
Waggons, Capacity of Railway..... 775

INDEX to leading articles on Railway Affairs in the Engineering Press, including Conducting Transportation, Financial, Legal, Motive Power and Equipment, New Projects, Permanent Way and Fixtures, Traffic and Miscellany.....151, 318, 485, 824, 982, 1143.

STREET AND ELECTRIC TRAMWAYS.

ELECTRIC-POWER DISTRIBUTION IN GREAT BRITAIN . . . . . *W. H. Booth* 41

THE DEVELOPMENT OF ELECTRIC RAILWAYS IN ITALY . . . . . *Enrico Bignami* 173

With 17 Illustrations.

PAGE.

REVIEWS.

Compressed Air Traction in New York. 949
Electric Locomotives and Multiple Driving 932
Electric Traction for Heavy Railway Service 1107
Locomotives and Multiple Driving, Electric 932
Locomotives, Steam and Electric..... 778
Manhattan Railway, Electrical Equipment of.....1112
Multiple Driving, Electric Locomotives and 932
New York, Compressed Air Traction in 949
Niagara Gorge Railway..... 284
Paris Metropolitan Railway..... 109
Railway Service, Electric Traction for Heavy 1107
Traction in New York, Compressed Air 949

INDEX to leading articles on Street and Electric Tramways in the Engineering Press.....154, 322, 487, 827, 985, 1146.

EDITORIAL COMMENT.....99, 261, 433, 773, 927, 1089.

REVIEW OF THE ENGINEERING PRESS.

The British Press.....101, 263, 435, 775, 931, 1091.
The Continental Press.....109, 271, 443, 783, 939, 1099.
The American Press.....117, 279, 451, 791, 947, 1107.

REVIEWS OF BOOKS.....988.